

Stress Fracture of the Cuboid in a Women's Soccer Player

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Background: Cuboid stress fractures are considered rare occurrence, especially in athletics. A higher suspicion is warranted with patients presenting with point tenderness and pain with ambulation on the lateral side of the foot. **Patient:** A 19-year-old women's Division III soccer player presented in the Athletic Training Clinic following two days of practice on a turf field. She was approximately 4 weeks into the season including a rather grueling 10-day preseason spent mostly on a natural grass field. She had been seen in the clinic prior for a right hamstring strain that had limited her practice for eight days. Shortly after gradually returning to full practice she presented with pain, which was described as a feeling of "pressure", in her right foot primarily over the 4th metatarsal, base of the 5th metatarsal, and cuboid bones. The patient stated she could not remember any specific event that caused the onset of this pain. During the history, the patient did mention that she wore orthotics all day and had recently bought a new pair and was still breaking them in, but they did not relieve her pain and when observing her gait, pes planus was also noted. She reported an increase in pain with palpation and axial compression of the 4th and 5th metatarsals and when she went up onto her toes. Due to the discomfort in her cuboid and a history of previous ankle sprain, cuboid mobilizations were performed but did not decrease her pain. **Intervention:** The patient was referred to the team physician for a suspected stress reaction in her metatarsals and was fitted in a CAM walking boot and started rehabilitation to strengthen foot intrinsic muscles. The physician ordered x-ray which was negative and an MRI was ordered which reported the presence of a grade 4 stress fracture of the cuboid.

Comparative Outcome: The patient was casted and is currently non-weight bearing for approximately 4-6 weeks. **Conclusion:** Isolated cuboid stress fractures are extremely rare, most commonly presenting with other tarsal injuries such as a Lisfranc. They tend to be a result of either repetitive motions or higher energy injuries resulting in, what is referred to as a "crush" fracture. Typically stress fractures have a gradual onset and do not present with a sudden report of acute pain. Of the few reported cases of cuboid stress fractures, more were reported in children, or in overuse sports like running, ballet, and gymnastics with repetitive trauma. Many of the signs and symptoms presented followed the common presentation for a stress fracture. With this patient, her tenderness attributed to the 4th and 5th metatarsals was likely due to the articulation with the cuboid. Treatment involves a period of immobilization, followed by a gradual progression of loading. Cuboid fractures typically heal without complication and it is expected that this patient will make a full return to sport. **Clinical Bottom Line:** It is important for athletic trainers to be aware of atypical presentations of foot injuries they may encounter. While key features for a cuboid stress fracture have not been documented in many case reports, knowledge of this uncommon injury can help lead athletic trainers to a higher level of suspicion, especially when the signs and symptoms fail to resolve with conservative treatment. Radiographic findings of cuboid stress fractures typically present as normal, with MRI being the gold standard for confirmation. Patients presenting with a suspected cuboid stress fracture and negative x-ray, may need further imaging with MRI. If not recognized and treated early enough, prolonged,

high loading, repetitive activity can lead to a complete cuboid fracture requiring surgical intervention. **Word Count: 600.**